WHAT IS CLAIMED IS:

1. A method for determining the rotational position of the drive shaft of a direct current motor, the method comprising:

detecting current ripples contained in an armature current signal of the motor as the drive shaft of the motor rotates in response to being driven by the motor;

counting the detected current ripples;

determining whether a current ripple expected to be contained in the armature current signal at a probable time point is absent from within a tolerance time band containing the probable time point of the expected current ripple;

if the expected current ripple is absent from within the tolerance time band containing the probable time point of the expected current ripple, then determining whether a current ripple is detected after the tolerance time band of the expected current ripple;

if a current ripple is detected after the tolerance time band of the expected current ripple and the expected current ripple is absent from within the tolerance time band, then counting the expected current ripple as a detected current ripple;

determining the rotational position of the drive shaft based on the counted current ripples; and

dynamically changing the length of the tolerance time band as a function of an operating state of the motor as the motor drives the drive shaft.

2. The method of claim 1 wherein:

the length of the tolerance time band is dynamically changed as a function of a change in the mean of the armature current signal, wherein the length of the tolerance time band is enlarged when the mean of the armature current signal increases and is reduced when the mean of the armature current signal decreases.

3. The method of claim 2 further comprising:

determining the mean of the armature current signal by taking into account a constant time interval preceding the probable time point of the expected current ripple.

4. The method of claim 2 further comprising:

determining the mean of the armature current signal by taking into account a time interval preceding the probable time point of the expected current ripple, wherein the length of the time interval depends on the operating state of the motor.

5. The method of claim 2 wherein:

the length of the tolerance band is changed in steps.

6. The method of claim 2 further comprising:

digitizing the armature current signal;

wherein the mean of the armature current signal is determined from the digitized armature current signal.

7. The method of claim 1 wherein:

the length of the tolerance time band is dynamically changed as a function of a change in motor speed, wherein the length of the tolerance time band is enlarged when the motor speed decreases and is reduced when the motor speed increases.

8. The method of claim 7 further comprising:

determining a negative change in motor speed by calculating a speed step response curve for an abrupt rise in motor torque based on maximum short-circuit torque to determine the maximum length of the tolerance time band.

9. The method of claim 7 further comprising:

digitizing the armature current signal in sampling intervals;

wherein the negative change in speed is calculated in every sampling interval in which the armature current signal is digitized.

10. The method of claim 7 further comprising:

calculating the negative change in motor speed once within a period of a current ripple for a given time point; and

extrapolating the negative change in motor speed for other time points based on the negative change in motor speed for the given time point.

11. The method of claim 7 wherein:

the motor has a start-up phase in which the change in motor speed is determined using motor current and characteristic data, the motor has an operating phase after the start-up phase in which the change in motor speed is determined from the difference between current motor current data and motor current data preceding the current motor data.

12. The method of claim 1 wherein:

the operating state of the motor includes shut-down and start-up motor operating states.